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Statistical Literacy Evangelical Calling

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MINISTERS VS. EVANGELISTS

**Ministers minister to believers;
 Evangelists convert non-believers.**

Believers may want (need) the details:
 Conditional Probability, Binomial distribution,
 Normal approximation, Central Limit theorem,
 Sampling distributions, Statistical Inference.

Non-believers need to see the benefits:
 If one can buy statistical significance, who cares?
 How does confidence affect my decisions?

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Statistical Education A Negative Future

Golden age for statistics – but not for statisticians
 Golden age for education involving statistics, but not
 for education provided by statistical educators

Business majors say “Stats is least valuable class”
 End of ‘Making Statistics Effective in Schools & Bus’
 MBA schools not replacing statisticians with same
 MAA has new modeling-based math program

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WAKE THE MINISTER

Education: content & pedagogy/assessment

Statistical educators:

- biased toward pedagogy: active stats, real data
- biased toward assessment
- biased away from content

No substantive change in content in 50 years.

No focus on modern topics (observational data):

- Epidemiology, public health, confounding.

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Prediction

If statistical education does not change,

- Business will stop requiring it.

As a percentage of all college grads,
 traditional statistics will be reduced
 from a class required by 60% in 2005,

- to a class required by 40% by 2020
- to a class required by 20% by 2040.

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Recommendation: Statistical Literacy

To study the use of statistics as evidence
 in everyday arguments

Students in introductory statistics need to see

- focus on observational studies & decisions
- statistics used in arguments about causation
- statistical prevarication & opportunism
- statistical significance and confounding